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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,575	12/14/2001	Kozo Mugishima	WN-2422	5986
466	7590	05/24/2004	EXAMINER	
YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			MAI, TAN V	
		ART UNIT		PAPER NUMBER
		2124		5
DATE MAILED: 05/24/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/014,575	MUGISHIMA, KOZO
	Examiner Tan V Mai	Art Unit 2124

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 4-19-02, 3-14-02 & 6-5-03.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-18 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-18 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3-4</u> .	6) <input type="checkbox"/> Other: _____.

1. The abstract of the disclosure is objected to because legal phraseology is used in this paragraph (i.e., "comprises"). Correction is required. See MPEP § 608.01(b).
2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-8 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims recite a method for performing a mathematical function. The claimed invention comprises a plurality of mental steps whereby the claimed mental steps are non-statutory subject matter. Specifically, the claimed method steps can be practiced mentally in conjunction with pen and paper.

However, in order for such a claimed computer-related process to be statutory, the method claims must include either a step that results: (1) in a physical transformation outside the computer, (2) in a limitation to a practical application, or (3) performed specific machine/element(s). Accordingly, claims 1-8 are clearly directed to a non-statutory process.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Fig. 1 (Prior Art) in view of Reference AI, JP 7-30373, (Applicant's admission Prior Art).

As per independent claim 1, Applicant's Fig. 1 discloses a periodic function generating circuit substantially as claimed, including: adder/accumulator elements having the unit angle U which is a mix (i.e., rational) number; however, the repeating "decimal (fractional)" is unavailable for accumulating. It is noted that Fig. 1 does not specifically detail the claimed "B and C numbers" for providing the "decimal (fraction)" C/B. Reference AI discloses a digital device which has accumulator means (5); an integrating means (3) for accumulating the "decimal (fractional)"; and an overflow detecting means (4) [which is considered the claimed step "comparing"] for providing the correct value "1" to the accumulator (5). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Reference AI to Fig. 1, thereby making the claimed invention, because the proposed device is a digital device capable of accumulating the sums and correcting the accumulated result when the accumulated decimal is equal to or greater than "1" as claimed.

As per dependent claim 2, the claim adds: (1) modifying step, and (2) subtracting step. The adding "1" in the accumulator means (5) is considered the claimed modifying step. Reference AI does disclose the equivalent "subtracting step", e.g., "[t]his compensation is performed each time deviation exceeds 1 and the correct is performed at each time, so control reaches a command at all times" (Abstract, last three line).

As per dependent claim 3, due to the similarity of claim 3 to claim 2, it is rejected under a similar rationale. It is noted that the "multiple of C is equal to or larger than the value B" [of claim 2] is the same as the "multiple of C is equal to or larger than a value MB" [of claim 3] because both "C/B" and "C/MB" are "decimal (fraction)".

As per dependent claim 4, Reference A1 discloses the claimed feature, e.g., see abstract, "so a decimal part generated each time a multiplying means 2 performs arithmetic is integrated and accumulated by an integrating means 3".

As per independent claim 5, the claim adds extracting [a value ... from a function table" step. Fig. 1 shows a "function table ROM".

Due to the similarity of claims 6-8 to claim 2-4, they are rejected under a similar rationale.

As per claims 9-18, the apparatus claims are corresponding to the method claims. Therefore, they are rejected under a similar rational.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cited references are art of interest.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tan V. Mai whose telephone number is (703) 305-9761. The examiner can normally be reached on Tue-Fri from 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki, can be reached on (703) 305-9662. The fax phone numbers for the organization where this application or proceeding is assigned are:

After-final	(703) 746-7238
Official	(703) 746-7239
Non-Official/Draft	(703) 746-7240.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



TAN V. MAI  
PRIMARY EXAMINER

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DOCUMENT-IDENTIFIER: JP 07030373 A

TITLE: DIGITAL FILTER

PUBN-DATE: January 31, 1995

INVENTOR- INFORMATION:

NAME  
HARA, MITSUO

ASSIGNEE- INFORMATION:

NAME	COUNTRY
NIPPONDENSO CO LTD	N/A

APPL-NO: JP05193113

APPL-DATE: July 7, 1993

INT-CL (IPC): H03H017/02, G06F007/38 , G06F017/10

ABSTRACT:

**PURPOSE:** To enable accurate control follow-up operation by compensating digit absence of the digital filter.

**CONSTITUTION:** A figure shows a low-pass filter(LPF) as a primary delay digital filter. For primary delay, a current input value is added to the quantity obtained by properly multiplying the difference between a last output value and the current input value by a constant to obtain a current output. Here, digit absence is caused at the time of the constant multiplication, so a decimal part generated each time a multiplying means 2 performs arithmetic is integrated and accumulated by an integrating means 3 and when the integration result is  $\geq 1$ , an overflow detecting means 4 sends an output signal of  $+1$  to an adding means 5. The adding means 5 adds output correction of  $+1$  in addition to normal arithmetic for a digitized integer part, thereby compensating the digit absence due to digitization. This compensation is performed each time deviation exceeds 1 and the correction is performed at each time, so control reaches a command at all times.

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DOCUMENT

TITLE: (19) 日本国特許庁 (JP) (12) 公開特許公報 (A) (11) 特許出願公開番号  
PUBN-DA 特開平7-30373  
(43) 公開日 平成7年(1995)1月31日

INVENTOR NAME: (51) Int.Cl: H03H 17/02 P 8842-5J PI 技術表示箇所  
HARA, M G 06 F 7/38 Y  
17/10 884-51 G 06 F 15/31 D

ASSIGNEE NAME: 審査請求 未請求 請求項の数1 FD (全7頁)  
NIPPONI

APPL-NO: (21) 出願番号 特願平5-193113 (71) 出願人 000004260  
APPL-DA (22) 出願日 平成5年(1993)7月7日 (72) 発明者 原 光雄  
愛知県刈谷市昭和町1丁目1番地  
日本電装株式会社内  
(74) 代理人 弁理士 藤谷 修

INT-CL (54) 【発明の名称】 デジタルフィルタ

ABSTRACT: (57) 【要約】

PURPOSE: 【目的】 デジタルフィルタの桁落ちを補償し、正確な制御追従を実現する。

digit abs: 【構成】 図1は一次遅れデジタルフィルタの場合のブロック図で、ローパスフィルタ(LPF)である。一次遅れは、前回の出力値と今回の入力値との差を適切に定数倍した量に、今回の入力を加えて、今回の出力とする。ここで、定数倍する所で桁落ちが発生するので、乗算手段2で演算されるごとに生じる小数部分を積分手段3で積算累積し、その積算結果が±1以上なら、オーバーフロー検出手段4で±1の出力信号を加算手段5に送る。加算手段5では、通常のデジタイズされた整数部の演算に加えて、この±1の出力補正を加算することで、デジタイズによる桁落ちを補償する。この補正是偏差が1を超えるごとに発生し、そのたびごとに補正されていくので制御が常に目標値に達することが可能である。

CONST: (a)  $y_{-1} = u$   
digital fil: (b)  $y_{-1} = (y_{-1} - u)$   
quantity: (c)  $u = u + KIL * (y_{-1} - u) + \text{キャリーフラグ}$   
value an: O/F: オーバーフロー  
Here, dig: O/F 回 ±1  
decimal: O/F 回以外 0  
integrate: thereby  
result is: is perform  
of &plus; each tim

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Diagram:

Diagram labels:

- 1: 削算手段 (Subtractor)
- 2: フィルタ定数 計算部 (Multiplier)
- 3: 積算手段 (Integrator)
- 4: 積分手段 O/F 検出手段 (Multiplier and Overflow detector)
- 5: 加算手段 (Adder)
- 6: バッファ手段 (Buffer)

Equations:

- a:  $y_{-1} = u$
- b:  $y_{-1} = (y_{-1} - u)$
- c:  $u = u + KIL * (y_{-1} - u) + \text{キャリーフラグ}$
- O/F: オーバーフロー